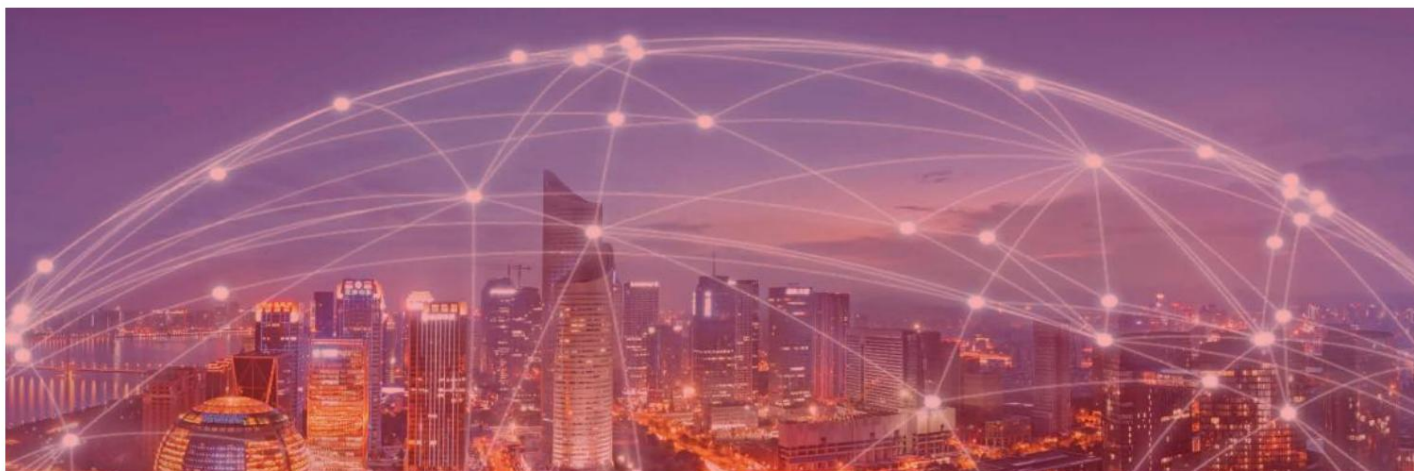




深圳市天逸源电子科技有限公司 Shenzhen Tianyiyuan Elec&Technology CO.,Ltd

Contact number: Mr. Tang: 13244864327 (same number on WeChat)

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Project Information

Customer_____	<u>Shenzhen Xinchuangjin Technology Co., Ltd.</u>
Project Name	--
Band_____	2400/5150/5850 MHz
TYT Part number_____	TYT-TX4515
Version_____	01
Radio Frequency (RF)	Tang Gong
Structural ME	Jiang Gong
Date _____	2025.03.21
Report Version project Version	V1.0
Customer part number_____	



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WIFI Specification

1. Specifications

The report mainly provides the test of various electrical performance parameters of the models of Shenzhen Xinchuangjin Technology Co., Ltd. TYY-TX4515 antenna is WIFI internal

The WIFI antenna is composed of FPC + RF line. (As shown in Figure 1 below)

The finished product features

Electrical performance indicators		Electrical Specifications	
Frequency range	2400/5150/5850MHZ	Frequency Range	2400/5150/5850MHZ
VSWR	≤1.5	VSWR	≤1.5
Maximum gain	3.84DBI	Max GAIN	3.84DBI
Input impedance	50 Ω	Input Impedance	50 Ω
Mechanical indicators		Mechanical Specifications	
Antenna color	black	Antenna Color	BLACK
Interface form	IPEX-1	Input connector	IPEX-1
Line length	125mm	Cable length	125mm
Operating temperature	-40 ° C~+85°C	Working Temperature	-40°C~+85°C
Operating humidity	20~80%	Working Humidity	20~80%



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Figure 1 TYY-TX4515

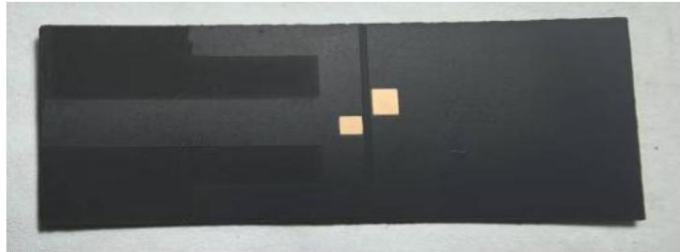


Figure 2: TYY-TX4515 Wi-Fi antenna (125mm cable length with first-generation connector)

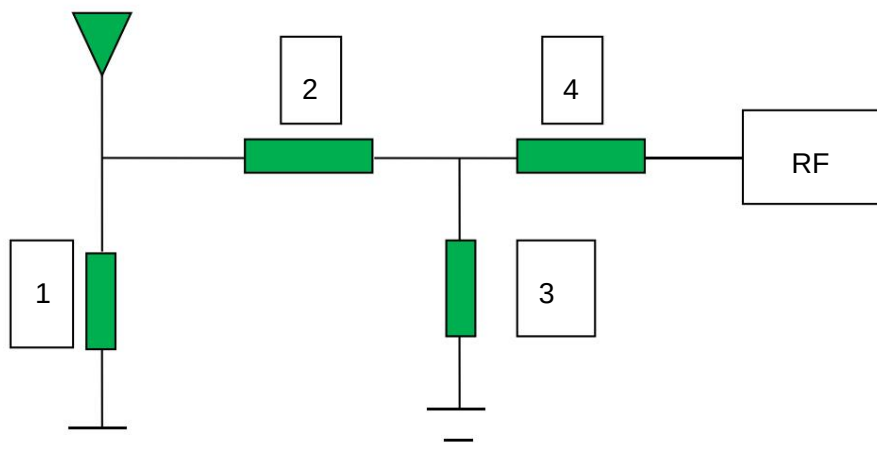


Figure 3 Assembly drawing (WIFI antenna)

Note: First tear off the tape on the back of the FPC and stick it in the middle of the recess, close to the pillar or frame at a right angle, away from the metal on the back of the screen and away from the speaker hardware. If the antenna is close to metal and causes the WiFi signal frequency to shift, stick the antenna according to the position marked in the picture above. Thank you!

2. Electrical performance

2.1 WiFi antenna matching circuit. The matching circuit for this project is provided by the customer.





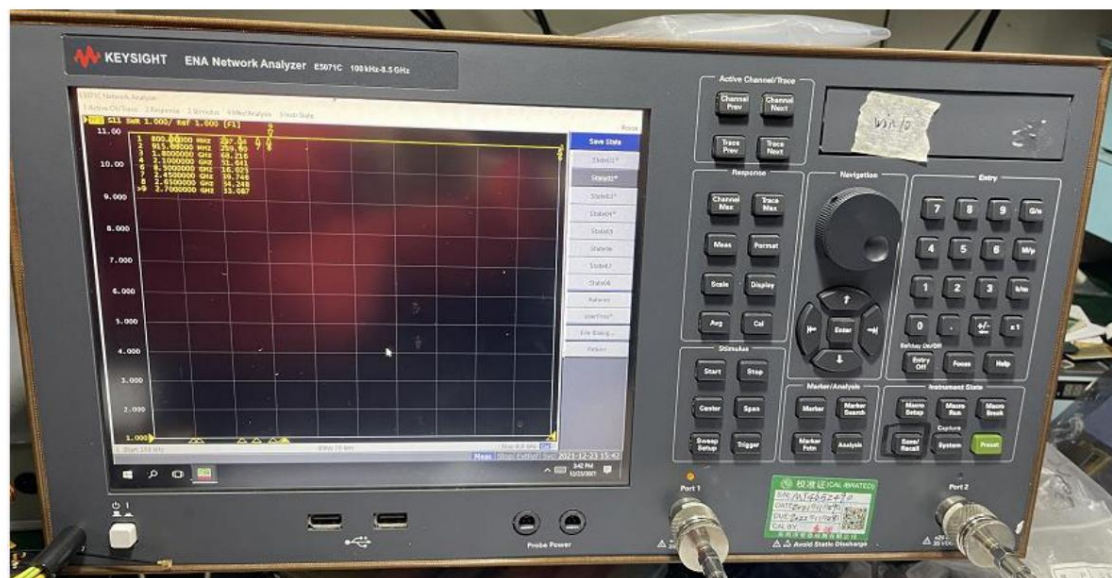
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Component Number	1	2	3	4
WIFI Best NC		0 ohm NC		
Original (alternative)	50 ohm matching			

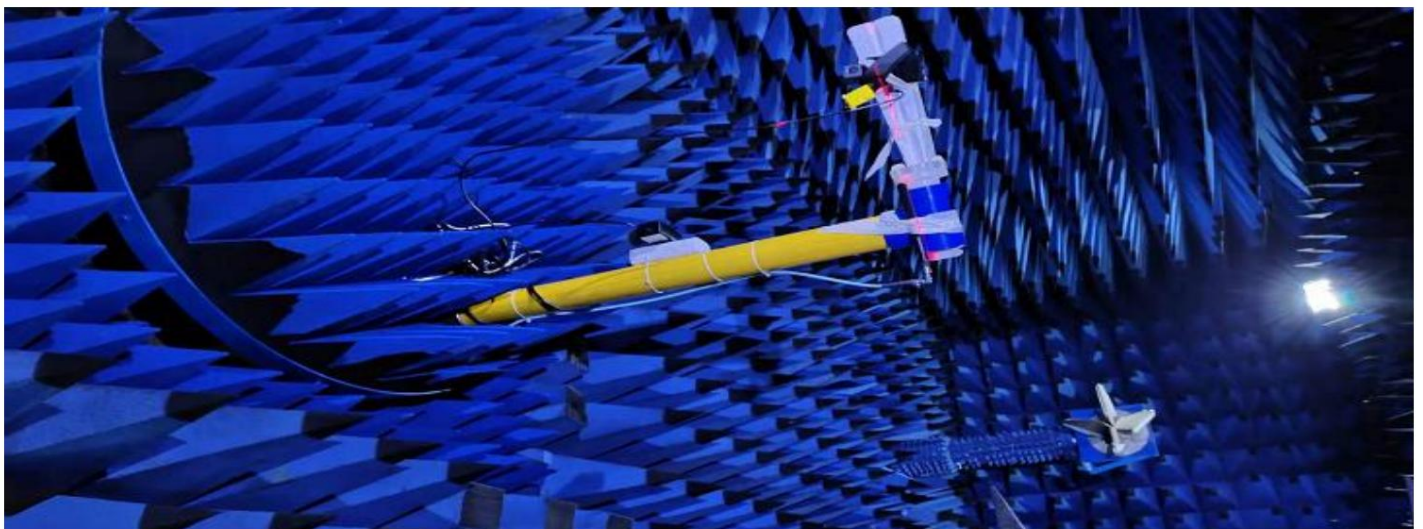
Figure 4 **Agilent E5071C Network Analyzer**



OTA microwave anechoic chamber: The test frequency range is 800MHz-6GHz, the quiet zone range is 50cm in circumference, and the reflectivity is less than -90 dB.

2.4.2 Test instruments Agilent E5071C network analyzer, log periodic antenna, computer, transmitting turntable, receiving antenna, Printer, jacket choke (to reduce signal connection line loss).

Figure 5 **OTA microwave anechoic chamber**





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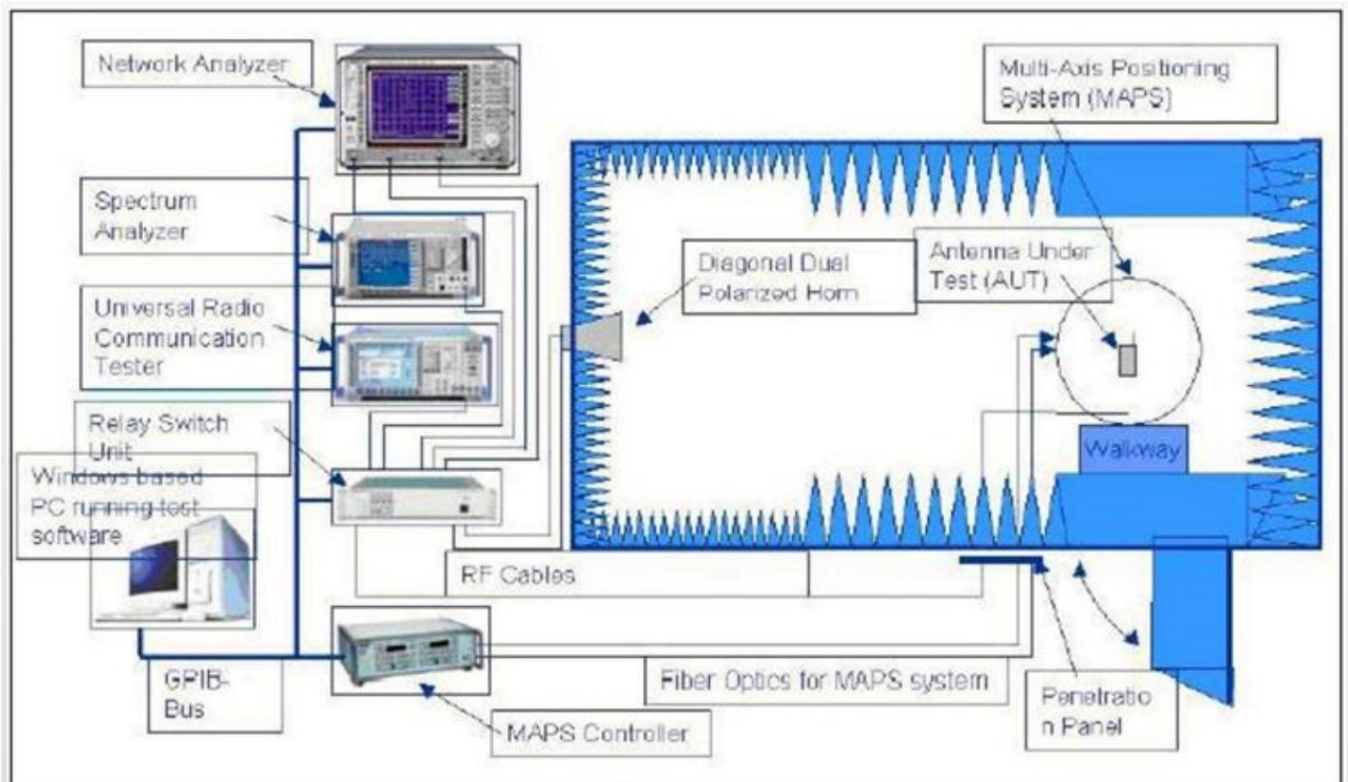
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Figure 6 Test environment: OTA743 darkroom, 8960/W500/8753ES/5071C, the machine is placed with its back facing 4 meters away from the standard horn antenna

Turntable





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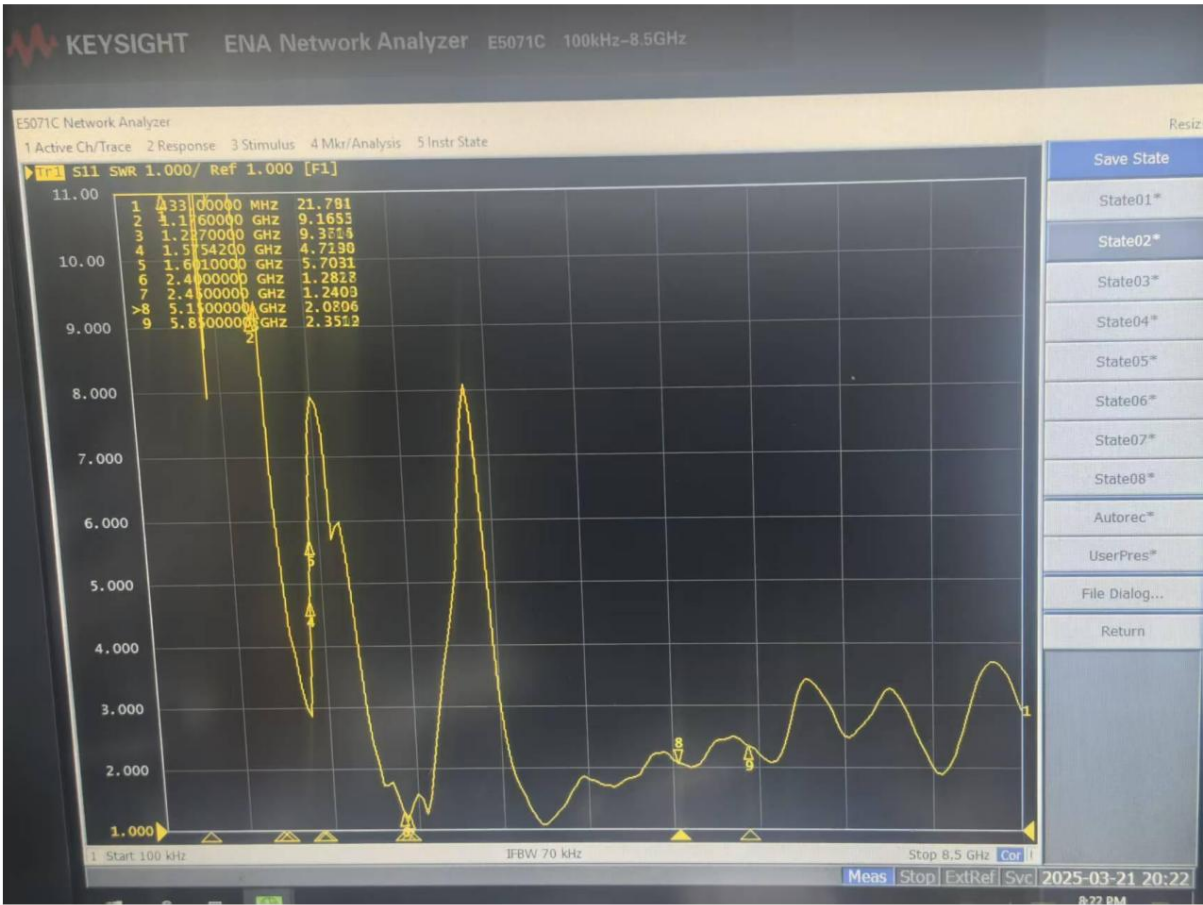
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2.3 Standing Wave Ratio (VSWR) Test

2.3.1. Test setup

The VSWR test setup is connected in sequence: Agilent E5071C Network Analyzer®, 50 ohm coaxial Cable®, 45 mm long copper tube
®Test fixture Test fixture processing: Use a hard cable to lead out the SMA-J connector from the 50 ohm test point of the antenna on the flat PCB.
Connect it to the copper pipe with a choke, and then connect other devices in turn.

Figure 7 Standing Wave Ratio (VSWR)



VSWR standing wave ratio

Standard	2.4~2.5GHz		5.7~5.8GHz		
Frequency (MHz)	2450	2500	5120	5850	
VSWR	1.28	1.24	2.0	2.3	



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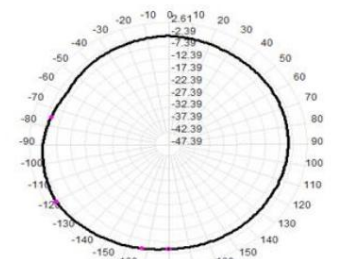
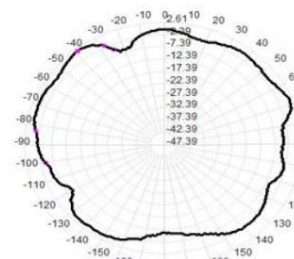
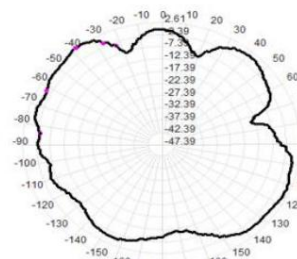
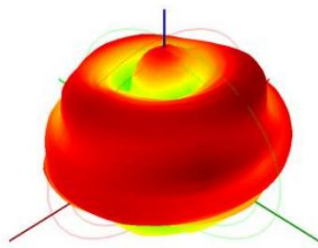
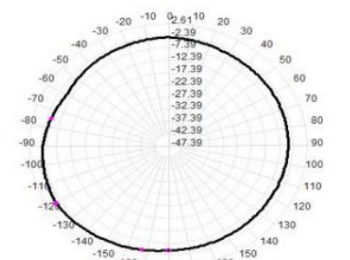
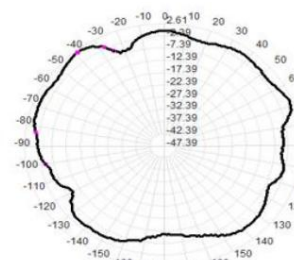
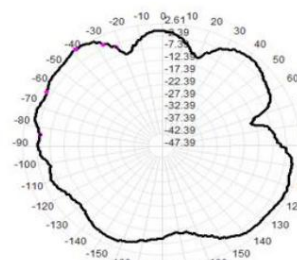
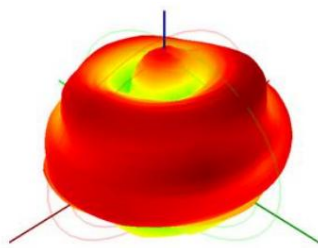
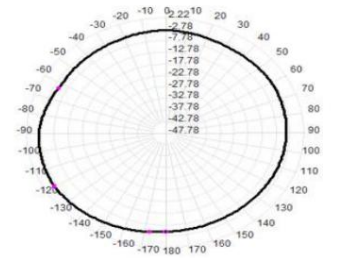
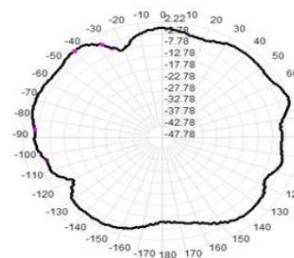
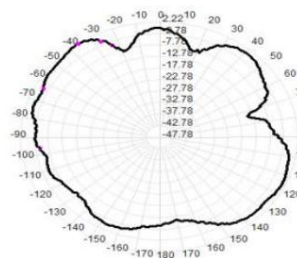
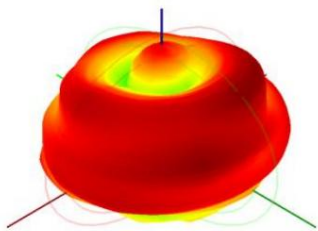
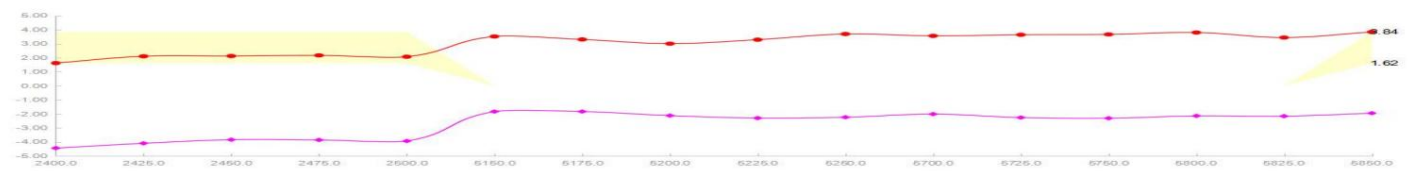
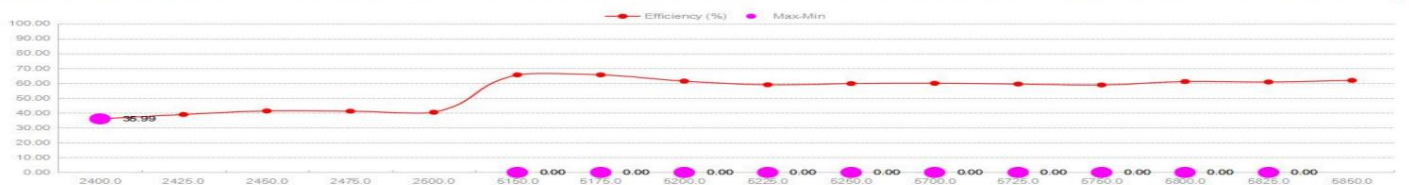
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Wi-Fi test report

Frequency ID	1	2	3	4	5	7	8	9	10	11	13	14	15	16	17	18
Frequency (MHz)	2400.0	2425.0	2450.0	2475.0	2500.0	5150.0	5175.0	5200.0	5225.0	5250.0	5700.0	5725.0	5750.0	5800.0	5825.0	5850.0
Efficiency (dBi)	-4.44	-4.10	-3.84	-3.86	-3.93	-1.83	-1.83	-2.12	-2.30	-2.24	-2.01	-2.26	-2.31	-2.14	-2.16	-1.95
Gain (dBi)	1.62	2.11	2.12	2.17	2.07	3.52	3.30	3.00	3.29	3.69	3.56	3.64	3.66	3.80	3.44	3.84
Efficiency (%)	35.99	38.92	41.31	41.14	40.43	65.56	65.57	61.34	58.90	59.69	59.89	59.39	58.76	61.07	60.77	61.82
Directivity (dB)	6.06	6.20	5.96	6.03	6.01	6.35	6.14	6.13	6.59	6.93	7.01	6.90	6.97	6.94	6.60	7.03
Peak Gain Position (Theta)	135.00	135.00	135.00	150.00	150.00	45.00	45.00	60.00	90.00	60.00	30.00	60.00	30.00	30.00	30.00	30.00
Peak Gain Position (Phi)	345.00	345.00	345.00	15.00	15.00	240.00	210.00	255.00	270.00	255.00	240.00	270.00	225.00	225.00	225.00	225.00
Efficiency ThetaPol (%)	17.68	19.25	20.67	20.73	20.70	23.42	22.68	21.66	20.12	17.99	25.83	24.11	24.64	26.08	25.83	27.97
Efficiency PhiPol (%)	18.31	19.67	20.65	20.42	19.73	42.14	42.88	39.68	38.78	41.70	37.06	35.28	34.11	34.99	34.95	35.85
Upper Hem. Efficiency (%)	14.67	16.28	17.21	16.78	16.24	44.88	44.35	41.15	39.03	41.59	42.93	40.40	39.48	39.62	40.04	41.95
Lower Hem. Efficiency (%)	21.32	22.64	24.10	24.37	24.19	20.67	21.22	20.19	19.87	18.10	19.96	19.00	19.28	21.45	20.73	21.87

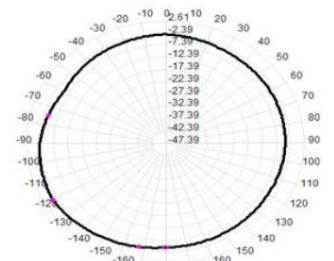
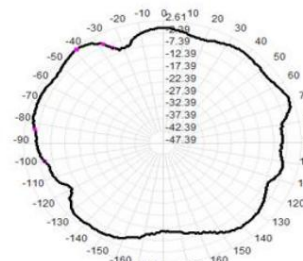
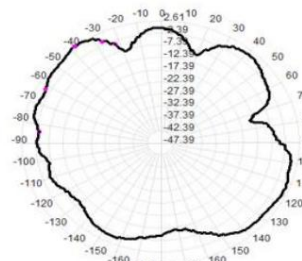
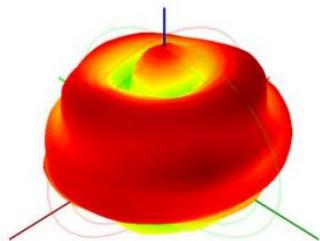
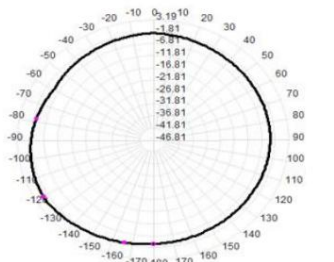
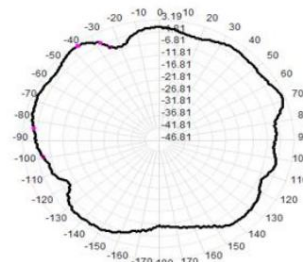
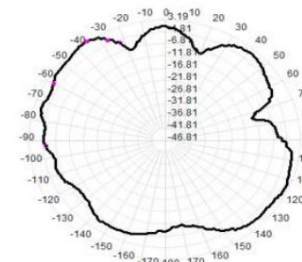
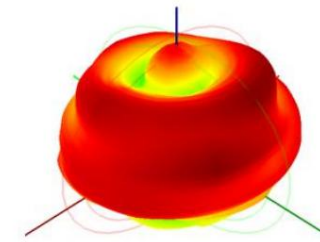
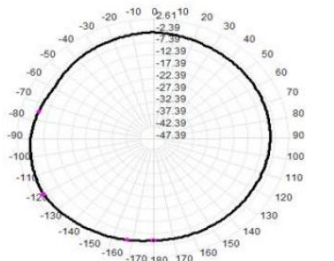
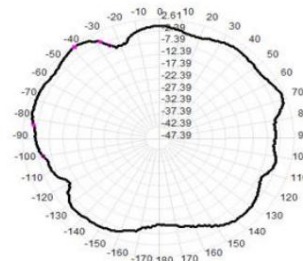
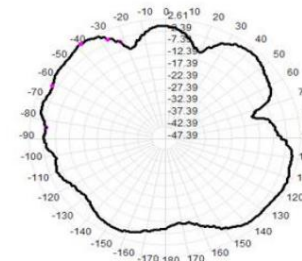
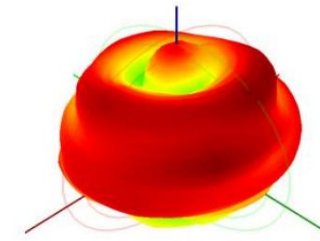
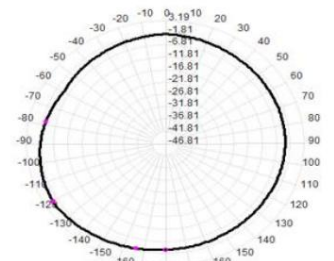
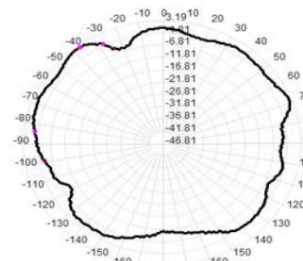
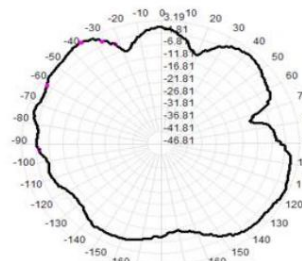
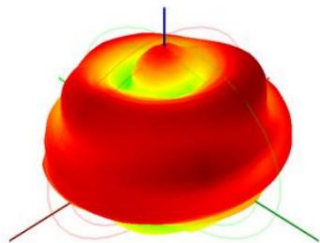
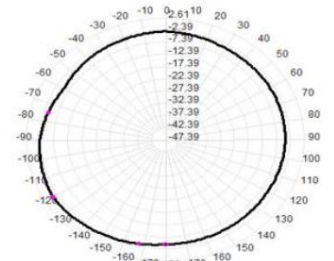
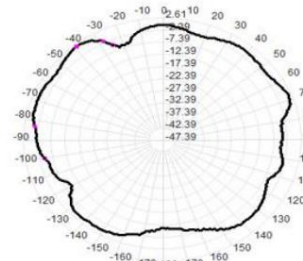
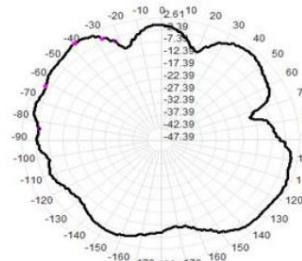
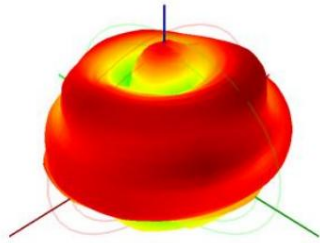




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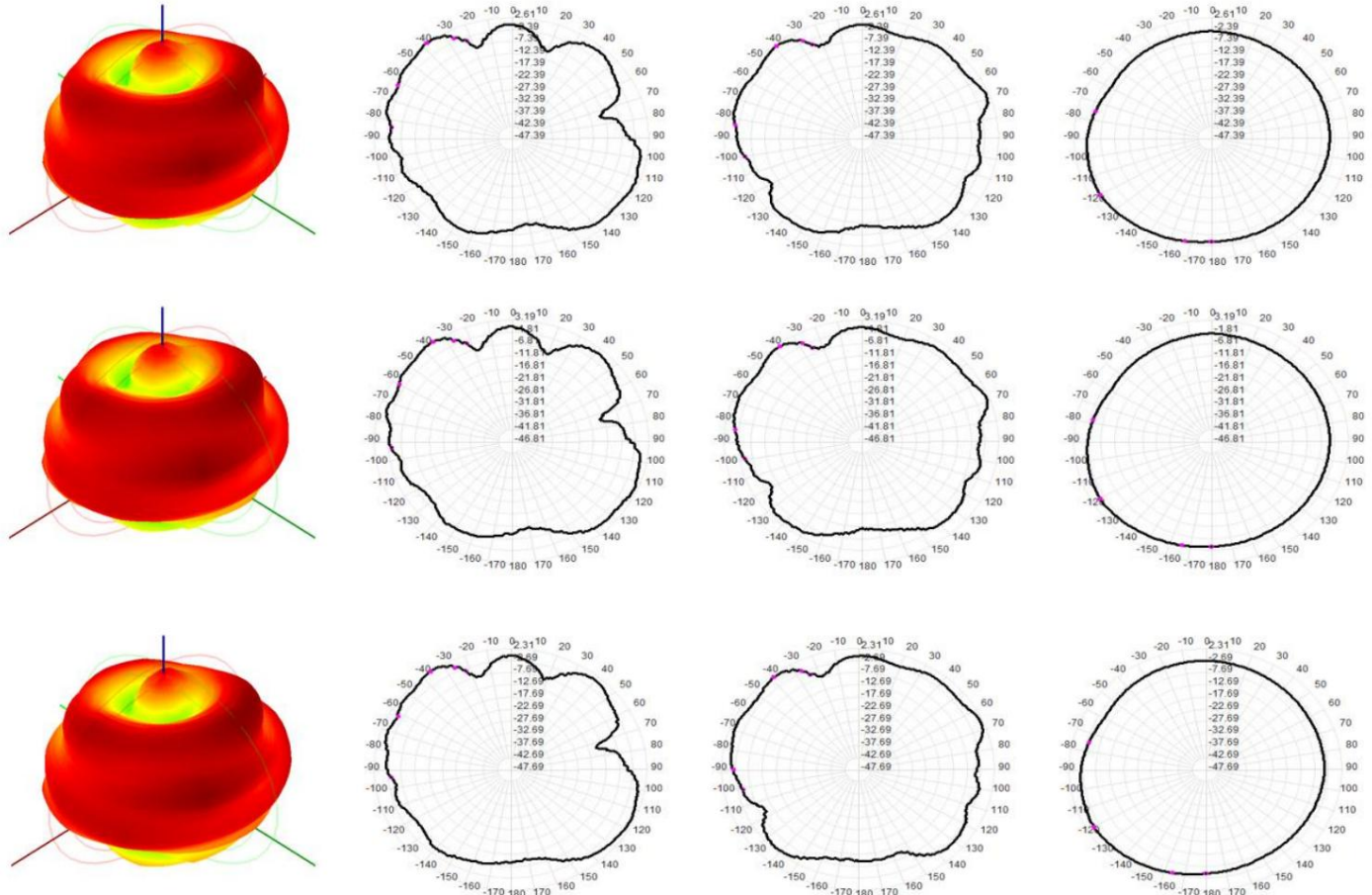




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4. Recommendations and

Conclusions This report is based on the model project proposed by Shenzhen Xinchuangjin Technology Co., Ltd.

The electrical performance of the antenna is measured using the PCB board.

From the above test data, we can see that this antenna provides good electrical performance.

Tianyiyuan R&D looks forward to your confirmation, thank you for your cooperation!

unit: mm

